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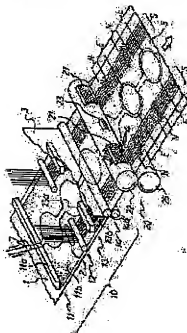
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(54) PRODUCTION METHOD OF COMPOSITE STRETCHABLE MEMBER

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a production method of a composite stretchable member with a base material sheet and an elastic member which enables the formation of a non-elastic area by cutting the elastic member efficiently while minimizing damages to the base material sheet.

SOLUTION: The production method comprises a first process in which a plurality of elastic members 2 are arranged being stretched individually on the base material sheet 1, being conveyed continuously, along the direction of the flow thereof and a second process in which the base material sheet 1 with the plurality of elastic members 2 arranged thereon are intermittently pressurized in the direction of the flow of the base material sheet 1 to cut the plurality of elastic members 2 with a pressurization part 21 having a number of protruded parts 4 for cutting elastic members and an elastic area E and the non-elastic area N are alternately formed in the direction of the flow thereof 1. The pressurization part 21 of the second process is so arranged as to pressurize the plurality of elastic members 2 to enable the elastic members 2 to be cut respectively at a plurality of points.



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CLAIMS

[Claim(s)]

[Claim 1]It is a manufacturing method of a compound elastic member which has an elastic region which reveals elastic stretchability, and an inelastic region which does not reveal elastic stretchability substantially. The 1st process of allocating two or more elastic members by a stretched state respectively along the flow direction on a substrate sheet conveyed continuously. By pressurizing intermittently a substrate sheet in which two or more elastic members were allocated for a flow direction by a pressurization part which has much heights for elastic member cutting, and cutting said two or more elastic members. A manufacturing method of a compound elastic member currently made as [cut / when the 2nd process that makes said elastic region and said inelastic region form in a flow direction of this substrate sheet by turns is provided and said pressurization part of said 2nd process pressurizes said two or more elastic members / at two or more places / this each of elastic member].

[Claim 2]In said 2nd process, said substrate sheet in which two or more elastic members were allocated, Pressurize this substrate sheet by inserting in between Ambil rolls by which the placed opposite was carried out to a cut roll which has said pressurization part, and this cut roll, and said heights of a large number in said pressurization part, A manufacturing method of the compound elastic member according to claim 1 with which it is distributed in a field of prescribed width which makes an axial length direction of a cut roll the cross direction, and said at least two or more heights are located in a line with a hoop direction of said cut roll in the whole region of the cross direction in this field.

[Claim 3]A manufacturing method of the compound elastic member according to claim 1 or 2 which laminates the 2nd substrate sheet further in said 1st process on said substrate sheet in which two or more elastic members were allocated, and pressurizes two or more elastic members pinched between both substrate sheets and both substrate sheets by said pressurization part in said 2nd process.

[Claim 4]Any of claims 1-3 made into length 1.5 to 4.5 times the extension magnification of natural of said elastic member at the time of pressurizing by said pressurization part, or a manufacturing method of a compound elastic member of a statement.

[Claim 5]A manufacturing method of the compound elastic member according to any one of claims 1 to 4 which heats said heights at 30-200 **.

[Claim 6]A manufacturing method of the compound elastic member according to any one of claims 2 to 5 which maintains uniformly an interval between said cut roll and said Ambil roll by a spacing means.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the manufacturing method of the compound elastic member which has a substrate sheet and an elastic member and has an elastic region and an inelastic region. The compound elastic member obtained by this invention can be used for warm temperature tools, such as absorbent articles, such as a disposable diaper, medical supplies, and a disposable body warmer, a cleaning instrument, etc.

[0002]

[Description of the Prior Art]In recent years, the manufacturing method of the compound elastic member which gave elastic stretchability only to the required portion is proposed variously. For example, the method of forming gathers in a length from the crotch to the cuff portion is proposed by JP,57-26219,B by applying adhesives and joining the elastic member in the length from the crotch to the cuff portion of a disposable diaper to a substrate sheet. Although this method is dramatically easy, And it is a disposable diaper, there is inconvenient [on the product specification design that a portion must be cut and the snapback (it says loosening the non-adhesion part of an elastic member by making the elastic member of fixed elongation percentage into non adhesion by an end part, and cutting by an end part.) of the elastic member must be carried out].

[0003]To JP,4-161152,A, the method of joining an elastic composite sheet to the predetermined region of a substrate sheet, and manufacturing a compound elastic member to it is indicated. According to this method, although desired product specification can be acquired, there is a fault that it is high-cost.

The method of cutting only this elastic member of the layered product of the sandwich structure which inserted the elastic member into the JP,2000-26015,A gazette in between is proposed.

According to this method, this method has flexibility in the design of product specification, and has the advantage that specification material is controlled and cost can be reduced. Although this method tends to cut only an inside elastic member, without tearing an outside material, When an inside elastic member is not what it is extremely easy to cut to an outside material, in order to do big damage also to an outside material, there is a problem that the material which can be used as an internal and external material will be restricted.

[0004]Therefore, it is a manufacturing method of the compound elastic member which the purpose of this invention has a substrate sheet and an elastic member, and has an elastic region and an inelastic region. An inelastic region can be made to form certainly by disappeared or reducing the elastic shrinkage nature of a predetermined region, and damage to a substrate sheet can be controlled to the minimum, and it is in moreover providing the manufacturing method of an elastic member and a compound elastic member with high flexibility of the material selection of a substrate sheet.

[0005]

[Means for Solving the Problem]This invention is a manufacturing method of a compound elastic member which has an elastic region which reveals elastic stretchability, and an inelastic region which does not reveal elastic stretchability substantially, The 1st process of allocating two or

more elastic members by a stretched state respectively along the flow direction on a substrate sheet conveyed continuously. By pressurizing intermittently a substrate sheet in which two or more elastic members were allocated for a flow direction by a pressurization part which has much heights for elastic member cutting, and cutting said two or more elastic members. Provide the 2nd process that makes said elastic region and said inelastic region form in a flow direction of this substrate sheet by turns, and said pressurization part of said 2nd process. By pressurizing said two or more elastic members, the above-mentioned purpose is attained by providing a manufacturing method of a compound elastic member currently made as [cut / at two or more places / this each of elastic member].

[0006]

[Embodiment of the Invention] The desirable embodiment is described for this invention below, referring to drawings. The manufacturing installation of the compound elastic member shown in drawing 1 is a manufacturing installation of a compound elastic member used for operation of the manufacturing method of the compound elastic member which is one embodiment of this invention. As the manufacturing method of the compound elastic member of this embodiment is a method of manufacturing the compound elastic member used as the armor body 62 of the trousers type disposable diaper 6 shown in drawing 4 and it is shown in drawing 1, Two or more elastic members 2 are allocated in each side part of the broad substrate sheet 1, and the elastic region E and the inelastic region N manufacture the compound elastic member 4 which has the band-like field S formed by turns in the side part of a longitudinal direction. In the side part of the compound elastic member 5, since it is the same, below, the method of forming said band-like field S explains how to form the field S in the flank which is mainly one side.

[0007] The manufacturing installation of the compound elastic member shown in drawing 1 is provided with the elastic member arranging part 10 and the elastic member dividing part 20. The elastic member arranging part 10 is provided with the following.

The 1st adhesives coating part 11.

Elastic member induction 12.

The 2nd adhesives coating part 13.

Composite sheet formation part 14.

[0008] The 1st adhesives coating part 11 is provided with the publicly known adhesives coater 11a, and carries out coating of the hot melt adhesive 11b to prescribed width continuously to the band-like substrate sheet 1 supplied continuously. On the substrate sheet 1 in which coating of the hot melt adhesive 11b was carried out, the elastic member induction 12 allocates two or more elastic members 2 supplied continuously, where a predetermined extension rate is expanded. The 2nd adhesives coating part 13 is provided with the publicly known adhesives coater 13a, and carries out coating of the hot melt adhesive 13b to the field side where this elastic member 2 in the substrate sheet 1 in which two or more elastic members 2 were allocated exists intermittently to a flow direction.

[0009] The continuous band-like 2nd substrate sheet 3 is continuously supplied to the composite sheet formation part 14, and both the substrate sheets 1 and 3 and two or more elastic members 2 are pinched between the nip roll 14a of a couple, and 14a. Thereby, these are unified and a composite sheet is formed.

[0010] As for the nip roll 14a of a couple, and the crevice between 14a, although it may be fixed to prescribed width, in order to ensure adhesion of the elastic member of the successive state, it is preferred to use power, such as oil pressure, pneumatics, and a spring, and to pressurize the bearing portion of a nip roll. Although the surface of these nip rolls 14a and 14a is based on the kind of substrate sheet, etc., since hot melt adhesive may escape from a substrate sheet and may pollute a roll surface, it is preferred that use a non-adhesive material or processing in which it does not adhere is carried out.

[0011] the elastic member dividing part 20 — much heights 4 and 4 for elastic member cutting — with the cut roll 22 which equipped the peripheral surface with the pressurization part 21 which has .. the surface by which the placed opposite was carried out to this cut roll 22 — it having the elastic member cutting device which consists of a smooth Ambil roll 25, and, Said both

substrate sheets 1 and 3 that were unified and were used as the composite sheet, and said elastic member 2 are inserted in among both the rolls 22 and 25 of this elastic member cutting device, and it is constituted so that these may be intermittently pressurized by the flow direction by said pressurization part 21. It is made as [cut / two or more elastic members 2 allocated among both the substrate sheets 1 and 3 / , respectively / by the application of pressure by this pressurization part 21 / in a part]. The pressurizing mechanism by oil pressure or pneumatics is provided in the bearing portion, and a desired pressure can be applied now to the cut roll 22 to the insertion thing inserted in among both the rolls 22 and 25.

[0012]In a part of hoop direction of the cut roll 22, the pressurization part 21 is formed so that it may project from the peripheral surface of this cut roll 22. Although pattern shape can be given to the perimeter of the cut roll 22 and it can also be considered as the shape provided in a part to cut the AMPIRU roll 25 into, Since there is a fault that it is necessary to perform many pattern processings, cut roll processing expense can become high, and a compound elastic member cannot be twisted around the Ambil roll, it is preferred like the device of drawing 1 to form the pressurization part 21 in a part of hoop direction of the cut roll 22.

[0013]the pressurization part 21 — the heights 4 and 4 for elastic member cutting — much .. is distributed and it is this pressurization part 21 — the elastic members 2 and 2 of this plurality — it has made by pressurizing .. as [cut / at two or more places / this each of elastic member]. said a majority of heights 4 and 4 .. being distributed in the field R of the prescribed width which makes the cross direction the axial length direction of the cut roll 22 in the pressurization part 21, and in the whole region of the cross direction (the direction of arrow C of drawing 2) in this field R, At least two or more heights 4 and 4 are located in a line with the hoop direction (the direction of arrow M of drawing 2) of the cut roll 22. That is, when the straight line L prolonged in the hoop direction of the cut roll 22 is assumed (refer to drawing 2) and which position from the one end R1 of this field R to the other end R2 is made to move this straight line L onto the field R of said prescribed width, this straight line L intersects at least two or more heights 4 and 4. Like the heights 4 and 4 which intersect the straight line L2 as a state where the heights 4 and 4 are located in a line with the hoop direction of the cut roll 22, also when the central point of heights has shifted, it is contained. Drawing 2 is a mimetic diagram and has illustrated only the part of the heights of a large number distributed by the field R. The pattern to arrange [many] can be mentioned to the hoop direction of a roll, shifting the position of the heights of each sequence for the sequence which consists of two or more heights allotted with the prescribed interval as an example of the arrangement pattern of heights little by little to the axial length direction of a roll.

[0014]When the elastic member 2 is processed in the distorted state or tension fluctuation and wrinkles occur in a substrate sheet, the field R of said prescribed width. The arranging position of each elastic member 2 may produce a position shift crosswise, and an application-of-pressure pattern and a layout are determined that all the elastic members may be certainly pressurized between the field R of this prescribed width and the Ambil roll 25 in the pressurization part 21 in that case (when it blurs). The field R of prescribed width is set up such.

[0015]As for especially the shape of the heights 4 for elastic member cutting, although rhombus shape, the shape of an ellipse, circular, the shape of an ellipse, rectangular shape, etc. are not restricted, it is preferred that the length to which the length along the axial length direction of the cut roll 22 meets 1-20 mm and a hoop direction is about 0.2-5 mm. As for much heights 4, it is preferred that each area arranges regularly what is a 0.2-100-mm² grade in the pitch (distance of the central point of heights) of about 2-50 mm. As for especially the total area of the heights 4 of a large number in the field R of prescribed width, it is preferred that it is 10 to 50% 0.1 to 80% of the whole surface product of this field R. The whole surface product of the field R at this time is shown as an area of the line which connected the outermost heights within the limit.

[0016]In order to manufacture the compound elastic member 5 using the manufacturing installation of composition of having mentioned above, The substrate sheets 1 and 3 and two or more elastic members 2 which supplied the substrate sheets 1 and 3 and two or more elastic members 2 to the predetermined region shown in drawing 1, respectively, made unify these in the

composite sheet formation part 14, and were unified are intermittently pressurized by the above-mentioned pressurization part 21.

[0017] In this embodiment, since it has the composition which the above-mentioned pressurization part 21 mentioned above, two or more two or more elastic members 2 of all are cut in a part, respectively. Especially if the number of the cutting parts of each elastic member 2 is two or more, it will not be restricted, but it can be suitably determined according to the length of the inelastic region N, etc. For example, the distance between heights can be about 5-80 mm. Thus, since two or more elastic members 2 are cut by the heights 4 of distributed a large number at two or more places according to the method of this embodiment, it can weaken to such an extent that the elastic function of each elastic member in the field pressurized by the pressurization part 21 is vanished certainly or an elastic function is not revealed substantially. For this reason, the inelastic region N can be made to form in the flank of the compound elastic member 5 certainly. And the field between the adjoining inelastic regions N in the strip region S where two or more elastic members were allotted turns into the elastic region E.

[0018] After eliminating the technical load in high-speed production by supplying all the materials continuously according to the method of this invention, it becomes possible to form an inelastic region before the end cut considered to be conventionally difficult. Each elastic member has a stretched state canceled by cutting in the inelastic region N. Although it is preferred not to reveal elastic stretchability thoroughly, the weak elastic stretchability which is a grade which does not reveal elastic stretchability substantially, and a grade by which gathers are not formed in the inelastic region N in the state where junction immobilization of the absorbent body 61 later mentioned on the inelastic region N was carried out for example, may be revealed.

[0019] On the other hand, when two or more elastic members allocated on the substrate sheet are made to pressurize and cut by the large-sized and single heights for elastic member cutting, when a substrate sheet is extremely thin, when it pulls to this substrate sheet and a tension is added as a result of the fall of intensity of the substrate sheet of the pressurized portion, it is easy to produce the inconvenience of a hole opening to this substrate sheet, or fracturing. On product performance, although adhesion of the substrate sheet of two sheets is needed in an inelastic region in many cases, let the inelastic region be non adhesion.

[0020] On the other hand, when two or more two or more elastic members 2 are cut by much heights 4 as in the manufacturing method of this embodiment in a part, respectively. Even if it is a case where a certain amount of hauling tension is added to a substrate sheet, inconvenience, like a hole opens to a substrate sheet can be prevented. That is, the fall of the intensity of a substrate sheet can be controlled to the minimum, and generating with poor product defect and continuous running can be controlled. It is also possible to paste up a substrate sheet in an inelastic region.

[0021] In the heights 4 of a large number in a pressurization part are distributed in the field R of the prescribed width which makes width the axial length direction of the cut roll 22, and the whole region of the cross direction in this field R. Since at least two or more heights 4 and 4 are located in a line with the hoop direction of the cut roll 22. Also in the case where the position along which the elastic member 2 passes produces a position shift somewhat in the direction which intersects perpendicularly with the flow direction of the substrate sheet 1 etc., it can weaken to such an extent that the elastic function of all the elastic members is vanished certainly or an elastic function is not revealed substantially.

[0022] As for the extension magnification of said elastic member 2, it is preferred that the extension magnification at the time of pressurizing by the pressurization part 21 is 1.5 to 4.5 times the natural length. By setting extension magnification as this within the limits, the cut nature of the elastic member 2 can be raised further. When especially the formation raw materials of the elastic member 2 are a polyurethane elastic fiber (spandex), crude rubber, and a synthetic rubber, the improved effect of cut nature is remarkable.

[0023] Since heights [especially] of the pressurization part 21 heating at 50-120 °C can improve the secitility of the elastic member 2 by 30-200 %, they are preferred. A maximum is for the substrate sheet which contacted fusing and being [adhere and] made not to grow up at a roll, and when a nonwoven fabric is used for the substrate sheets 1 and 3, if it is the melting

point of the constituent material, for example, PE, it is preferred [a maximum] that it is 130 ** or less.

[0024]As for the interval between the cut roll 22 and the Ambil roll 25, maintaining uniformly by a spacing means is preferred. Here, maintaining an interval uniformly means controlling pulsation of the crevice (clearance) between heights 4 tip and the Ambil roll peripheral surface which are produced by having formed the pressurization part 21 in a part of hoop direction of the cut roll 22. While being able to suppress vibration of a device and being able to lengthen the life of a device by maintaining uniformly the interval between the cut roll 22 and the Ambil roll 25, and controlling pulsation of said crevice (clearance), By reducing the impact load concerning a substrate sheet, damage to a substrate sheet can be suppressed to the minimum.

[0025]Although it can use especially as a spacing means, without restricting a publicly known means in some numbers, For example, the method of providing the annular side ring (bearer) which **** to the peripheral surface of the Ambil roll in the both ends of the cut roll 22, the method of forming a wedge in the bearing portion of the pressurizing shaft of the cut roll 22, etc. can be mentioned.

[0026]As for the pressure to which said heights 4 for elastic member cutting pressurize the substrate sheet 1 in which the elastic member 2 was allocated, it is preferred to set it as 50Ns/mm - 10 kN/mm preferably especially 1N/mm - 1 MN/mm with a linear pressure. Cutting of an elastic member is extremely stable in a linear pressure being not less than 50Ns/mm, and the fracture in the boundary part of the pressurization part according that cotton pressure is 10 kN(s)/less than mm to the strength reduction of an outside material (substrate sheet) and a pressureless part is controlled notably. A linear pressure here is a numerical value which shows the pressure added between the rolls of a couple, and when the pressure added between the cut roll 22 and the Ambil roll contacts a cut roll and the Ambil roll, it is the value which *(ed) by the length of the line of contact which disregarded crushing of a roll.

[0027]As for the application of pressure by the pressurization part 21 to the substrate sheet 1 in which the elastic member 2 was allocated, it is preferred to carry out in the field to which adhesives are not directly applied on the elastic member 2. That is, as for the application of pressure by the pressurization part 21, it is preferred to carry out in the field which the elastic member 2 has not pasted up on the substrate sheets 1 and 3, or the field which the elastic member 2 has pasted up by adhesive strength weaker than other portions to the substrate sheets 1 and 3.

[0028]In the manufacturing installation mentioned above, although the 2nd hot melt adhesive 13b is applied on the elastic member 2 of the part which forms the elastic region E, on the elastic member 2 of the part which forms the inelastic region N, the 2nd hot melt adhesive 13b is intermittently applied so that it may not apply.

[0029]In this embodiment, the elastic member 2 is cut and the un-functionalized phenomenon is attained below in any of (1) - (3), or 2 or more [these] mechanisms.

(1) In the quantity of the 1st hot melt adhesive 11b applied to the substrate sheet 1, adhesion maintenance of the elastic member after being divided cannot be carried out, but a stretched state is canceled and the elastic member in the inelastic region N is un-functionalized. On the other hand, in the elastic region E, while the elastic member has been a stretched state, it is held by collaboration of the adhesives (the 2nd hot melt adhesive 13b) directly applied to the elastic member, or said two adhesives 11b and 13b, and an elastic function is revealed. The part where the elastic member was un-functionalized is the inelastic region N, and the part where an elastic member reveals an elastic function serves as the elastic region E.

(2) The heights for elastic member cutting are heated, are bringing the stress of the divided elastic member close to disappearance, and make an elastic member un-functionalize selectively by softening adhesives again by applying heat by these heights.

(3) Before the adhesives by which coating was carried out reveal the adhesive strength which fixes an elastic member, pressurize and divide by the heights for elastic member cutting, and make an elastic member un-functionalize selectively.

[0030]The direction of cut nature where the elastic member has not applied adhesives to a substrate sheet or an elastic member improves. That is, adhesives are working in division of an

elastic member as the shock absorbing material of a pressure, and a thing which checks heat transfer.

[0031]The compound elastic member 5 manufactured by the manufacturing method of this embodiment is cut by the size of each disposable diaper after fixed mounting of the absorbent body 61 as intermittently shown in drawing 3 is carried out on a line. Drawing 3 is a figure showing the state after cutting. And the edges-on-both-sides parts of the venter part A and the back B are joined by a publicly known joining method, and the trousers type disposable diaper 6 as shown in drawing 4 is obtained.

[0032]The disposable diaper 6 shown in drawing 4 becomes the armor body 62 which cut and obtained the compound elastic member 5, and this armor body 62 from the absorbent body 61 by which junction immobilization was carried out, the inelastic region N of the compound elastic member 5 — the venter part A and the back B — you make it located in the center section of girth part D which is boiled, respectively and can be set — the elastic region E of the compound elastic member 5 — the venter part A and the back B — you make it located in both the side parts of girth part D which is boiled, respectively and can be set The absorbent body 61 consists of the absorber 63 of the liquid holdout which intervened between the fluid permeability surface sheet 65, the back sheet (not shown) of fluid impermeability, and both sheets. As a formation material of a surface sheet, a back sheet, and an absorber, a publicly known thing can be especially used without restriction in some numbers. 66 are solid gathers among drawing 3.

[0033]The inelastic region N is allotted to the position which overlaps with the absorber 63 in the disposable diaper 6, therefore the kink of this absorber 63, etc. can be prevented, and can make the absorption performance of an absorber reveal to the maximum extent by that cause, and. Wearing nature improves, there are no useless wrinkles further in particular in the circumference of the waist, a print handle looks to advantage, and it can be considered as the outstanding thing which also felt appearance refreshed. Since the big damage at the time of cutting of an elastic member has not arisen in the web material (the substrate sheet 1 or 3) which forms an outside surface, it excels in appearance further. Since the elastic region E is allotted to the venter part A and both the side parts of girth part D in the back B, it excels also in the fit nature of the diaper to a wearer's motion.

[0034]The back sheet of fluid impermeability is arranged on the absorbent body, and since this disposable diaper 6 is composition which is not allotted to the armor body 62, it can apply the manufacturing method of this invention to manufacture of the armor body 62 preferably. Since between the substrate sheets 1 and 3 which form the inelastic region N is joined by hot melt adhesive, aggravation of the appearance by exfoliation between both the substrate sheets 1 and 3 and the divided scrap of the elastic member 2 serving as shape of ***** is prevented. The adhesive strength to the main part of a diaper of the abandonment tape used at the time of diaper abandonment is also securable. As for the basis weight of the hot melt adhesive in the inelastic region N from this viewpoint, it is preferred that it is 0.5 - 10 g/m².

[0035]In the manufacturing method of the compound elastic member 5 mentioned above, As shown in drawing 1, the 2nd elastic member 7 that is allotted to the circumference of the leg opening 64 of the disposable diaper 6, and forms leg gathers, It allocates on the substrate sheet 1 like the above-mentioned elastic member 2, and the pressurization part 23 provided on the same cut roll 22 as said elastic member 2 is cutting simultaneously the 2nd elastic member 7 of the portion allotted on the absorber 4. The single heights provided in the pressurization part 23 are cutting the 2nd elastic member 7 at one place.

[0036]As a substrate sheet in this invention, a resin film, a nonwoven fabric, etc. can use a publicly known web material in some numbers. As a substrate sheet in the case of manufacturing the compound elastic member used for an absorbent article, a nonwoven fabric is preferred, and when manufacturing the compound elastic member used for an armor body, a water-repellent nonwoven fabric is especially preferred.

[0037]As textiles which constitute a nonwoven fabric, for example Polyethylene (PE), polypropylene (PP), Natural fibers, such as regenerated cellulose textiles, such as synthetic fibers, such as polyamide like polyester like polyethylene terephthalate (PET) and nylon, rayon,

and cuprammonium rayon, and a cotton, are mentioned. The sheath-core type textiles which used textiles with the high melting point as the core, and used textiles with the low melting point as the sheath, a side ***- side type bicomponent fiber, etc. are used suitably. These textiles can use one sort or two sorts or more. As a process of a nonwoven fabric, various nonwoven fabrics, such as a spun bond nonwoven fabric, a melt-blown nonwoven fabric, a spun lace nonwoven fabric, and needle punch nonwoven fabrics, can be used.

[0038]As the elastic member 2 in this invention, various kinds of raw materials currently conventionally used, for example for the absorbent article and the elastic member (desirable filar thing) of a gestalt can be used.

[0039]As mentioned above, although the desirable embodiment of this invention was described, this invention can be suitably changed within limits which do not deviate from the meaning. For example, on the substrate sheet 1 shown in drawing 1, the elastic member 2 may be introduced only at one flank of the longitudinal direction. The 2nd substrate sheet 3 is also omissible.

[0040]

[Effect of the Invention]According to this invention, can manufacture the compound elastic member which has a substrate sheet and an elastic member and has an elastic region and an inelastic region, and the manufacture is faced, The elastic function of the elastic member of a predetermined region can be disappeared or reduced certainly, and an inelastic region can be made to form certainly, and damage to a substrate sheet can be controlled to the minimum. And the flexibility of material selection is high about an elastic member and each substrate sheet.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is an outline perspective view showing the manufacturing process of the compound elastic member concerning one embodiment of this invention.

[Drawing 2] It is an explanatory view for explaining the arrangement pattern of the heights for elastic member cutting.

[Drawing 3] It is a figure showing an example of the use of the compound elastic member manufactured by the method of this invention, and is a top view showing the trousers type disposable diaper which constituted the armor body by the compound elastic member manufactured by the method of this invention as an expanded state.

[Drawing 4] It is a figure showing an example of the use of the compound elastic member manufactured by the method of this invention, and is a perspective view showing the trousers type disposable diaper which constituted the armor body by the compound elastic member manufactured by the method of this invention.

[Description of Notations]

- 1 Substrate sheet
 - 2 Two or more elastic members
 - 3 The 2nd substrate sheet
 - 5 Compound elastic member
 - 6 A trousers type disposable diaper (absorbent article)
 - 61 Absorbent body
 - 62 Armor body
 - 7 The 2nd elastic member
 - A Venter part
 - B Back
 - D Girth part
 - E Elastic region
 - N Inelastic region
 - 10 Elastic member arranging part
 - 11 The 1st adhesives coating part
 - 11b Hot melt adhesive
 - 12 Elastic member induction
 - 13 The 2nd adhesives coating part
 - 13b The 2nd hot melt adhesive
 - 14 Composite sheet formation part
 - 20 Elastic member dividing part
 - 4 Heights for elastic member cutting
 - 21 Pressurization part
 - 22 Cut roll
 - 25 Ambil roll
-

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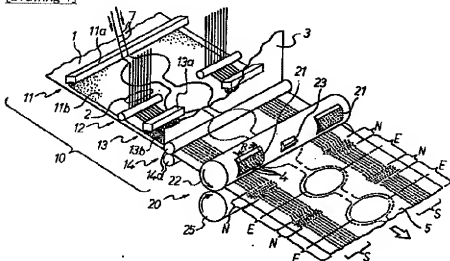
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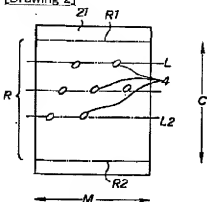
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DRAWINGS

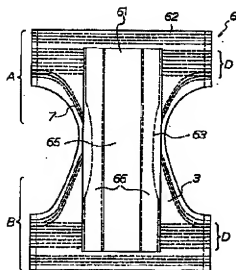
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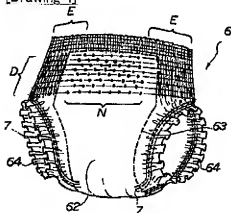
[Drawing 2]



[Drawing 3]



[Drawing 4]



[Translation done.]

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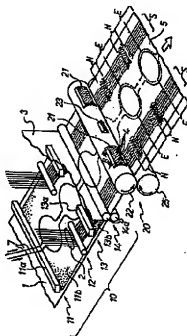
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(54) 【発明の名称】 複合伸縮部材の製造方法

(57) 【要約】

【課題】 基材シートと弾性部材とを有する複合伸縮部材の製造方法であって、基材シートに損傷を最小限に抑制しつつ弾性部材を効率的に切断して非弾性領域を形成することができる複合伸縮部材の製造方法を提供すること。

【解決手段】 連続的に搬送される基材シート1上に、その流れ方向に沿って複数の弾性部材2を各々伸張状態で配設する第1工程と、複数の弾性部材2が配設された基材シート1を、弾性部材切断用の刃部4を多数有する加圧部21で流れ方向に間欠的に加圧して複数の前記弾性部材2を切断することにより、該基材シート1の流れ方向に、弾性領域Eと非弾性領域Nとを交互に形成させる第2工程とを具備しており、第2工程の加圧部21は、複数の弾性部材2を加圧することにより、該弾性部材2それぞれが複数箇所で切断されるようになってある。



【特許請求の範囲】

【請求項 1】 弾性伸縮性を発現しない非弾性領域とを有する複合伸縮部材の製造方法であって、

連続的に搬送される基材シート上に、その流れ方向に沿って複数の弾性部材を各々伸張状態で配設する第 1 工程と、複数の弾性部材が配設された基材シートを、弾性部材切断用の凸部を多数有する加圧部で流れ方向に間欠的に加圧して複数の前記弾性部材を切断することにより、該基材シートの流れ方向に、前記弾性領域と前記非弾性領域とを交互に形成させる第 2 工程とを具備しており、前記第 2 工程の前記加圧部は、複数の前記弾性部材を加圧することにより、該弾性部材それぞれが複数箇所で切断されるようになしてある複合伸縮部材の製造方法。

【請求項 2】 前記第 2 工程においては、複数の弾性部材が配設された前記基材シートを、前記加圧部を有するカットロールと該カットロールに対向配置されたアンビルロールとの間に押通することにより該基材シートを加圧し、

前記加圧部における多数の前記凸部は、カットロールの軸長方向を幅方向とする所定幅の領域内に分散配置されており、該領域内の幅方向の全域において、少なくとも 2 以上の前記凸部が前記カットロールの周方向に並んでいる請求項 1 記載の複合伸縮部材の製造方法。

【請求項 3】 前記第 1 工程においては、複数の弾性部材が配設された前記基材シート上に更に第 2 の基材シートを積層し、前記第 2 工程においては、両基材シート及び両基材シート間に挟持された複数の弾性部材を、前記加圧部で加圧する請求項 1 又は 2 記載の複合伸縮部材の製造方法。

【請求項 4】 前記加圧部で加圧する際の前記弾性部材の伸長倍率を自然長の 1.5～4.5 倍とする請求項 1～3 の何れかに記載の複合伸縮部材の製造方法。

【請求項 5】 前記凸部を 30～200℃に加熱する請求項 1～4 の何れかに記載の複合伸縮部材の製造方法。

【請求項 6】 前記カットロールと前記アンビルロールとの間の間隙を間隔保持手段により一定に維持する請求項 2～5 の何れかに記載の複合伸縮部材の製造方法。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、基材シートと弾性部材とを有し、弾性領域及び非弾性領域を有する複合伸縮部材の製造方法に関する。尚、本発明で得られる複合伸縮部材は、使い捨ておむつ等の吸収性物品、医療用品、使い捨てカイロ等の温熱用具、清掃用具等に利用することができる。

【0002】

【従来の技術及び発明が解決しようとする課題】近年、必要な部分にのみ弾性伸縮性を付与した複合伸縮部材の製造方法が種々提案されている。例えば、特公 57ー

26219 号公報には、使い捨ておむつの股下部分における弾性部材を、接着剤を塗布して基材シートに接合することにより、股下部分にギャザーを形成する方法が提案されている。この方法は、非常に簡単であるが、使い捨ておむつのエンド部分をカットして弾性部材をスナップバック（一定伸張率の弾性部材をエンド部で非接着とし、エンド部でカットすることにより弾性部材の非接着部を弛緩させることをいう。）させなくてはならないという製品仕様設計上の不便さがある。

【0003】また、特開平 4-161152 号公報には、基材シートの所定部位に、弾性複合シートを接合して複合伸縮部材を製造する方法が記載されており、この方法によれば、所望の製品仕様を得ることができるが、コストが高いという欠点がある。また、特開 2000-28015 号公報には、弾性部材を間に挟んだサンドイッチ構造の積層体の弾性部材のみを切断する方法が提案されている。この方法は、この方法によれば、製品仕様の設計に自由度があり、また、仕様材料を抑制してコストを削減できるという利点がある。この方法は、外側の材料を破らずに、内側の弾性部材のみを切断しようとするものであるが、内側の弾性部材が外側の材料に対して極端に切断し易いものでない場合には、外側の材料にも大きな損傷を与えてしまうため、内外の材料として使用できる材料が限られてしまうという問題がある。

【0004】従って、本発明の目的は、基材シートと弾性部材とを有し、弾性領域及び非弾性領域を有する複合伸縮部材の製造方法であって、所定部位の弾性収縮性を消失又は低減させることにより非弾性領域を確実に形成させることができると共に基材シートの損傷を最小限に抑制することができ、しかも弾性部材及び基材シートの材料選択の自由度が高い複合伸縮部材の製造方法を提供することにある。

【0005】

【課題を解決するための手段】本発明は、弾性伸縮性を発現する弾性領域と実質的に弾性伸縮性を発現しない非弾性領域とを有する複合伸縮部材の製造方法であって、連続的に搬送される基材シート上に、その流れ方向に沿って複数の弾性部材を各々伸張状態で配設する第 1 工程と、複数の弾性部材が配設された基材シートを、弾性部材切断用の凸部を多数有する加圧部で流れ方向に間欠的に加圧して複数の前記弾性部材を切断することにより、該基材シートの流れ方向に、前記弾性領域と前記非弾性領域とを交互に形成させる第 2 工程とを具備しており、前記第 2 工程の前記加圧部は、複数の前記弾性部材を加圧することにより、該弾性部材それぞれが複数箇所で切断されるようになしてある複合伸縮部材の製造方法を提供することにより、上記の目的を達成したものである。

【0006】

【発明の実施の形態】以下本発明をその好ましい実施形態を、図面を参照しながら説明する。図 1 に示す複合伸

縮部材の製造装置は、本発明の一実施形態である複合伸縮部材の製造方法の実施に用いられる複合伸縮部材の製造装置である。本実施形態の複合伸縮部材の製造方法は、図4に示すパンツ型の使い捨ておむつ6の外装体62として使用される複合伸縮部材を製造する方法であり、図1に示すように、複数の弾性部材2を、幅広の基材シート1の両側部それぞれに配設し、弾性領域Eと非弾性領域Nとが交互に形成された帯状の領域Sを長手方向の両側部に有する複合伸縮部材4を製造するものである。前記帯状の領域Sを形成する方法は、複合伸縮部材5の両側部において同様であるため、以下においては、主として一方の側部に領域Sを形成する方法について説明する。

【0007】図1に示す複合伸縮部材の製造装置は、弾性部材配設部10及び弾性部材分断部20とを備えている。弾性部材配設部10は、第1接着剤塗工部11と、弾性部材導入部12と、第2接着剤塗工部13と、複合シート形成部14とを有している。

【0008】第1接着剤塗工部11は、公知の接着剤塗工機11aを備えており、連続的に供給される帯状の基材シート1に対して、所定幅にホットメルト型接着剤11bを連続的に塗工する。弾性部材導入部12は、連続的に供給される複数の弾性部材2を、ホットメルト型接着剤11bが塗工された基材シート1上に、所定の伸長率に伸長させた状態で配設する。第2接着剤塗工部13は、公知の接着剤塗工機13aを備えており、複数の弾性部材2が配設された基材シート1における該弾性部材2が存在する側面にホットメルト型接着剤13bを、流れ方向に間欠的に塗工する。

【0009】複合シート形成部14には、連続帯状の第2の基材シート3が連続的に供給されるようになっており、一對のニップロール14a、14a間に、両基材シート1、3及び複数の弾性部材2を挟持する。これにより、これらが一体化されて複合シートが形成される。

【0010】一對のニップロール14a、14a間の隙間は、所定幅に固定されていても良いが、連続状態の弾性部材の接着を確実にするために、油圧、空圧、バネなどの力を利用して、ニップロールの軸受部分を加圧することが好ましい。これらのニップロール14a、14aの表面は、基材シートの種類等にもよるが、ホットメルト型接着剤が基材シートを被けてロール表面を汚染する場合があるため、非粘着材料を使ったり、非粘着処理されていることが好ましい。

【0011】弾性部材分断部20は、弾性部材切断用の多数の凸部4、4・・を有する加圧部21を周面に備えたカットロール22と、該カットロール22に対向配設された表面平滑なアンビルロール25とからなる弾性部材切断装置を備えており、該弾性部材切断装置の両ロール22、25間に、一体化されて複合シートとされた、前記両基材シート1、3及び前記弾性部材2が挿通さ

れ、これらが前記加圧部21で流れ方向に間欠的に加圧されるように構成されている。この加圧部21による加圧により、両基材シート1、3間に配設された弾性部材2がそれぞれ複数箇所において切断されるようになされている。尚、カットロール22には、その軸受け部分に軸圧又は空圧による加圧機構が設けられており、両ロール22、25間に挿通された挿通物に対して所望の圧力を加えることができるようになっている。

【0012】加圧部21は、カットロール22の周方向の一部に、該カットロール22の周面から突出するように設けられている。カットロール22の全周にパターン形状を施し、アンビルロール25をカットしたい部位に設ける形状とすることもできるが、パターン加工を多く行う必要がありカットロール加工費用が高くなることや、アンビルロールに複合伸縮部材を巻き付けることができないといった欠点があるため、図1の装置のように、加圧部21を、カットロール22の周方向の一部に設けることが好ましい。

【0013】加圧部21は、弾性部材切断用の凸部4、4・・が多数分散配置されており、該加圧部21で、該複数の弾性部材2、2・・を加圧することにより、該弾性部材それぞれが複数箇所にて切断されるようになっている。多数の前記凸部4、4・・は、加圧部21における、カットロール22の軸長方向を幅方向とする所定幅の領域R内に分散配置されており、該領域R内の幅方向（図2の矢印C方向）の全域において、少なくとも2以上の凸部4、4がカットロール22の周方向（図2の矢印M方向）に並んでいる。即ち、前記所定幅の領域R上に、カットロール22の周方向に延びる直線Lを想定した場合（図2参照）、該直線Lを、該領域Rの一端R1から他端R2までの何れの位置に移動させた場合においても、該直線Lが少なくとも2以上の凸部4、4と交差するようになっている。尚、凸部4、4がカットロール22の周方向に並んでいる状態としては、直線Lに交差する凸部4、4のように、凸部の中心点同士がずれている場合も含まれる。図2は、模式図であり、領域R内に分散配置された多数の凸部の内の一部のみを図示してある。凸部の配置パターン等の例としては、所定間隔で配された複数個の凸部からなる列を、各列の凸部の位置をロールの軸長方向に少しずつずらしながら、ロールの周方向に多数配するパターンを挙げることができる。

【0014】前記所定幅の領域Rは、弾性部材2がねじれた状態で加工されたり、基材シートにデクション変動やしわが発生することにより、各弾性部材2の配設位置が幅方向に位置ズレを生じることがあり、その場合（ふれた場合）においても、総ての弾性部材が確実に、加圧部21における該所定幅の領域Rとアンビルロール25との間で加圧されるように加工パターン及びフィードアウトが決定される。所定幅の領域Rは、そのように設定される。

【0015】弾性部材切断用の凸部4の形状は、変形形状、楕円状、円形、長円状、輪形状等、特に制限されないが、カットロール22の軸長方向に沿う長さが1〜20mm、周方向に沿う長さが0.2〜5mm程度であることが好ましい。また、多数の凸部4は、各面積が0.2〜100mm²程度のを、ピッチ（凸部の中心点同士の距離）2〜50mm程度で規則的に配置することが好ましい。また、所定幅の領域R内における多数の凸部4の合計面積は、該領域Rの全面積の0.1〜80%、特に10〜50%であることが好ましい。この時の領域Rの全面積は、最外部の凸部を結んだ線の枠内の面積として示される。

【0016】上述した構成の製造装置を用いて複合伸縮部材5を製造するには、基材シート1、3及び複数の弾性部材2を、それぞれ図1に示す所定部位に供給し、これらを複合シート形成部14において一体化させ、一体化された基材シート1、3及び複数の弾性部材2を、上記加圧部21により間欠的に加圧する。

【0017】本実施形態においては、上記加圧部21が上述した構成を有するため、複数の弾性部材2の縁で、それぞれ複数箇所において切断される。各弾性部材2の切断箇所の数は、2以上であれば特に制限されず、非弾性領域Nの長さ等に応じて適宜に決定することができる。例えば、凸部間の距離は5〜80mm程度とすることができる。このように本実施形態の方法によれば、分散配置された多数の凸部4により複数の弾性部材2が複数箇所で切断されるため、加圧部21に加圧された領域内の各弾性部材の弾性機能を確実に、消失させるか又は実質的に弾性機能を発現しない程度に弱めることができる。このため、複合伸縮部材5の側部に確実に非弾性領域Nを形成させることができる。そして、複数の弾性部材が配された帯状領域Sにおける、隣接する非弾性領域N間の領域が弾性領域Zとなる。

【0018】本発明の方法によれば、全ての材料を連続して供給することで、高速生産における技術的負荷を排除したうえで、従来困難と考えられていたエンドカットの前に非弾性領域を形成することが可能となる。尚、非弾性領域Nは、各弾性部材が切断により伸張状態を解除されて、完全に弾性伸縮性を発現しないことが好ましいが、実質的に弾性伸縮性を発現しない程度。例えば、非弾性領域N上に後述する吸収性本体18を接合固定した状態において、非弾性領域Nにギャザーが形成されない程度の弱い弾性伸縮性を発現しても良い。

【0019】これに対して、基材シート上に配設した複数の弾性部材を、弾性部材切断用の大型で単一の凸部で加圧して切断させた場合、基材シートが極端に薄い場合には、加圧された部分の基材シートの強度が低下する結果、該基材シートに引っ張りテンションが加わった場合等には、該基材シートに孔が開いたり破断する等の不都合が生じ易い。また、製品性能上、非弾性領域において

2枚の基材シートの接合が必要とされるケースは多いが、非弾性領域は非接合とされている。

【0020】これに対して、本実施形態の製造方法におけるように、多数の凸部4により、複数の弾性部材2がそれぞれ複数箇所から切断されるようにした場合に、基材シートにある程度の引っ張りテンションが加わった場合であっても、基材シートに孔が開く等の不都合を防止することができる。即ち、基材シートの強度の低下を最小限に抑制することができ、製品不良や連続運転不良の発生を抑制することができる。また、非弾性領域において基材シートを接合することも可能である。

【0021】また、加圧部における多数の凸部4は、カットロール22の軸長方向を幅とする所定幅の領域R内に分散配置されており、該領域R内の幅方向の全域において、少なくとも2以上の凸部4、4がカットロール22の周方向に並んでいるため、弾性部材2が通る位置が、基材シート1の流れ方向に直交する方向に多少位置ズレを生じた場合等においても、総ての弾性部材の弾性機能を確実に、消失させるか又は実質的に弾性機能を発現しない程度に弱めることができる。

【0022】前記弾性部材2の伸長倍率は、加圧部21で加圧する際の伸長倍率が自然長の1.5〜4.5倍であることが好ましい。伸長倍率を所定の範囲内に設定することで、弾性部材2のカット性を一層向上させることができる。特に弾性部材2の形成素材が、ポリウレタン弾性繊維（スパンデックス）、天然ゴム、合成ゴムである場合にカット性の向上効果が顕著である。

【0023】また、加圧部21の凸部は30〜200℃、特に50〜120℃に加熱することが、弾性部材2の切断性を向上できるので、好ましい。上限は、接触した基材シートが溶融してロールに付着・成長することがないようにするためであり、基材シート1、3に不織布を用いた場合は、その構成素材の融点。例えば、PEであれば130℃以下であることが好ましい。

【0024】また、カットロール22とアンビルロール25との間の間隔は、間隔保持手段により一定に維持することが好ましい。ここで、間隔を一定に維持するとは、カットロール22の両端面の一部にのみ加圧部21を設けたことにより生じる、凸部4先端とアンビルロール端面との間の隙間（クリアランス）の振動を抑制することを意味する。カットロール22とアンビルロール25との間の間隔を一定に維持して、前記間隔（クリアランス）の振動を抑制することにより、装置の振動を抑えることができ、装置の寿命を長くすることができる。また、基材シートにかかる衝撃荷重を減らすことで、基材シートの損傷を最小限に抑えることができる。

【0025】間隔保持手段としては、各種公知の手段を特に制限せずに用いることができるが、例えばカットロール22の両端面に、アンビルロールの周面に転接する現状のサイドラング（ベアラ）を設ける方法、カット

ロール22の加圧料の軸受け部分にくさびを設ける方法等を行うことができる。

【0026】また、弾性部材切断用の前記凸部4が、弾性部材2が配設された基材シート1を加圧する圧力は、線圧で1N/mm²~1MN/mm²、特に好ましくは50N/mm²~10kN/mm²に設定することが好ましい。線圧が50N/mm²以上であると、弾性部材の切断が極めて安定化し、線圧が10kN/mm²以下であると、外側の材料（基材シート）の強度低下による加圧部と非加圧部の境界部における破断が顕著に抑制される。尚、ここでの線圧とは、一對のロール間に加わる圧力を示す数値であり、カットロール22とアンビルロール間に加わる圧力をコントロールとアンビルロールを接触させた時にロールの潰れを無視した接触部の長さで除した値である。

【0027】弾性部材2が配設された基材シート1に対する加圧部21による加圧は、弾性部材2上に直接接着剤が塗布されていない領域において行うことが好ましい。即ち、加圧部21による加圧は、弾性部材2が基材シート1、3に接着されていない領域、又は弾性部材2が基材シート1、3に対して他の部分よりも弱い接着力で接着されている領域において行うことが好ましい。

【0028】尚、上述した製造装置においては、第2のホットメルト型接着剤13bを、弾性領域Eを形成する部位の弾性部材2上には塗布するが、非弾性領域Nを形成する部位の弾性部材2上には塗布しないように、第2のホットメルト型接着剤13bを間欠的に塗布している。

【0029】本実施形態において、弾性部材2が切断されて、非機能化する現象は、以下(1)~(3)の何れか又はこれらの2以上のメカニズムの中で達成される。

(1) 基材シート1に塗布された第1ホットメルト型接着剤11bの量では、分断された後の弾性部材を接着保持することができず、非弾性領域Nにおける弾性部材は伸張状態が解除されて非機能化される。一方、弾性領域Eにおいては、弾性部材に直接塗布された接着剤（第2ホットメルト型接着剤13b）又は前記二つの接着剤11b、13bの協働により、弾性部材が伸張状態のまま保持され、弾性機能を発現する。弾性部材が非機能化された部位が非弾性領域Nであり、弾性部材が弾性機能を発現する部位が弾性領域Eとなる。

(2) 弾性部材切断用の凸部は加熱されており、凸部で熱を加えることにより、接着剤を再度軟化させることにより、分断した弾性部材の応力を消失に近づけることで、弾性部材を部分的に非機能化させる。

(3) 塗工された接着剤が弾性部材を固定する接着力を発現する前に、弾性部材切断用の凸部で加圧して分断し、弾性部材を部分的に非機能化させる。

【0030】弾性部材は、基材シートや弾性部材に接着剤を塗布していない方が、カット性は向上する。即ち、

接着剤は弾性部材の分断において、圧力の緩衝材として、また、伝熱を阻害するものとして働いている。

【0031】本実施形態の製造方法により製造された複合伸縮部材5は、ライン上において、間欠的に図3に示すような吸収性本体61が設置固定された後、個々の使い捨ておむつの寸法に切断される。図3は、切断後の状態を示す図である。そして、腹側部A及び背側部Bの両側縁部同士が公知の接合方法により接合されて、図4に示すようなパンツ型の使い捨ておむつ6が得られる。

【0032】図4に示す使い捨ておむつ6は、複合伸縮部材5を切断して得た外装体62と感体62に接合固定された吸収性本体61とからなり、複合伸縮部材5の非弾性領域Nを、腹側部A及び背側部Bそれぞれにおける側回り部Dの中央部に位置させ、複合伸縮部材5の弾性領域Eを、腹側部A及び背側部Bそれぞれにおける側回り部Dの両サイド部に位置させてある。吸収性本体61は、液透過性の表面シート65、液不透過性の裏面シート（図示せず）及び両シート間に存在した液保持性の吸収体63からなる。尚、裏面シート、裏面シート及び吸収体の形成材料としては、各種公知のものを特に制限なく用いることができる。図3中、66は、立体ギャザーである。

【0033】使い捨ておむつ6においては、非弾性領域Nが吸収体63とかなる位置に配されておき、そのため、吸収体63のヨレ等を防止でき、それにより吸収体の吸収性能を最大限に発現させることができると共に、装着性が向上し、更に、特に腰まわりに無駄なシワがなく、ブリント柄が映え、見た目もすっきりとした優れたものとすることができる。更に、外表面を形成するシート材（基材シート1又は3）には、弾性部材の切断時に大きな損傷が生じていないため、一層外観に優れている。また、弾性領域Eが、腹側部A及び背側部Bにおける側回り部Dの両サイド部に配されているため、着用者の動きに対するおむつのフィット性にも優れている。

【0034】尚、本使い捨ておむつ6は、液不透過性の裏面シートが吸収性本体に配されており、外装体62に配されていない構成であるため、その外装体62の製造に、本発明の製造方法を好ましく適用することができる。また、非弾性領域Nを形成する基材シート1、3間がホットメルト型接着剤により接合されているため、両基材シート1、3間の剥離や分断された弾性部材2の切れ端がよるによる形状とかなるによる外観の悪化が防止されている。また、おむつ廃棄時に使用する廃棄テープのおむつ本体に対する接着強度も確保できる。新から観点から、非弾性領域Nにおけるホットメルト型接着剤の厚量は0.5~10g/m²であることが好ましい。

【0035】尚、上述した複合伸縮部材5の製造方法においては、使い捨ておむつ6のレッグ開口部64の周囲に配されてレッグギャザーを形成する第2の弾性部材7

を、図 1 に示すように、上記弾性部材 2 と同様に基材シート 1 上に配設し、吸収体 4 上に配される部分の第 2 弾性部材 7 を前記弾性部材 2 と同じカットロール 2 上に設けた加圧部 23 により同時に切断している。尚、第 2 弾性部材 7 は、加圧部 23 に設けた単一の凸部により一か所において切断している。

【0038】本発明における基材シートとしては、樹脂フィルムや不織布等、各種公知のシート材を用いることができる。また、吸収性物品に用いられる複合伸縮部材を製造する場合における基材シートとしては、不織布が好ましく、外装体に用いられる複合伸縮部材を製造する場合には、特に撥水性の不織布が好ましい。

【0037】不織布を構成する繊維としては、例えば、ポリエチレン (PE)、ポリプロピレン (PP)、ポリエチレンテレフタレート (PET) のようなポリエステル及びナイロンのようなポリアミド等の合成繊維、レーヨン及びキュラ等の再生セルロース繊維、並びにコットン等の天然繊維が挙げられる。また、融点の高い繊維を芯とし且つ融点の低い繊維を鞘とした芯鞘型繊維やサイドバイサイド型の複合繊維等も好適に用いられる。これらの繊維は 1 種又は 2 種以上を使用することができる。また、不織布の製法としては、スパンボンド不織布、メルトブローン不織布、スパンレース不織布及びニードルパンチ不織布等の種々の不織布を用いることができる。

【0038】また、本発明における弾性部材 2 としては、例えば吸収性物品に従来使用されている各種の素材、形態の弾性部材 (好ましくは糸状のもの) を用いることができる。

【0039】以上、本発明の好ましい実施形態について説明したが、本発明は、その趣旨を逸脱しない範囲内において適宜変更可能である。例えば、図 1 に示す基材シート 1 上には、その長手方向の一方の側部にのみ弾性部材 2 を導入しても良い。また、第 2 の基材シート 3 は省略することもできる。

【0040】

【発明の効果】本発明によれば、基材シートと弾性部材とを有し弾性領域及び非弾性領域を有する複合伸縮部材を製造することができ、その製造に際しては、所定部位の弾性部材の弾性機能を確実に消失又は低減させて確実に非弾性領域を形成させることができると共に基材シートの損傷を最小限に抑制することができる。しかも弾性

部材及び基材シートそれぞれについて材料選択の自由度が高い。

【図面の簡単な説明】

【図 1】本発明の一実施形態に係る複合伸縮部材の製造工程を示す概略斜視図である。

【図 2】弾性部材切断用の凸部の配列パターンを説明するための説明図である。

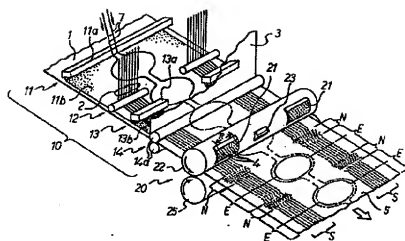
【図 3】本発明の方法で製造した複合伸縮部材の用途の一例を示す図で、本発明の方法で製造した複合伸縮部材により外装体を構成したパンツ型使い捨ておむつを展開状態として示す平面図である。

【図 4】本発明の方法で製造した複合伸縮部材の用途の一例を示す図で、本発明の方法で製造した複合伸縮部材により外装体を構成したパンツ型使い捨ておむつを示す斜視図である。

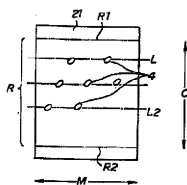
【符号の説明】

- 1 基材シート
- 2 複数の弾性部材
- 3 第 2 の基材シート
- 5 複合伸縮部材
- 6 パンツ型の使い捨ておむつ (吸収性物品)
- 61 吸収性本体
- 62 外装体
- 7 第 2 弾性部材
- A 腹側部
- B 背側部
- D 胴回り部
- E 弾性領域
- N 非弾性領域
- 10 弾性部材配設部
- 11 第 1 接着剤塗工部
- 11b ホットメルト型接着剤
- 12 弾性部材導入部
- 13 第 2 接着剤塗工部
- 13b 第 2 のホットメルト型接着剤
- 14 複合シート形成部
- 20 弾性部材分断部
- 4 弾性部材切断用の凸部
- 21 加圧部
- 22 カットロール
- 25 アンビルロール

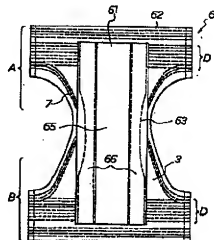
【圖1】



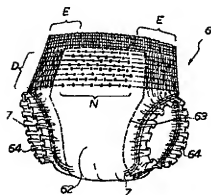
【圖2】



【圖3】



【圖4】



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